M/037/002
cc: Tom
Wayne
Paul

0010

Denison Mines (USA) Corp.
1050 17th Street, Suite 950
Denver, CO 80265
USA

Tel : 303 628-7798
Fax : 303 389-4125

www.denisonmines.com

RECEIVED
SEP 2 2 2009
DIV. OF OIL, GAS & MINING

September 18, 2009

Paul Baker
Utah Division of Oil Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Dear Mr. Baker:

Re: Uranium Mine Radiological Closure Standards

Denison has reviewed your email requesting input regarding uranium mine waste rock reclamation standards. We appreciate the opportunity to provide supporting information for your consideration.

As you know, this is a complex issue, and has been the subject of much debate over the years, including the debate as to what extent these matters may be subject to the jurisdiction of the state and to what extent they are under the sole jurisdiction of the Nuclear Regulatory Commission (or state agencies in Agreement States) under the Atomic Energy Act. To our knowledge, no federal or state radiological standards currently exist for reclamation of waste rock areas at uranium mine sites. In fact, under Section 6.2 of the Atomic Energy Act (42 U.S.C. 2092), and as set out in 10 CFR 40.13(b), the Nuclear Regulatory Commission has specifically excluded natural ores from regulation under the Atomic Energy Act.

An example of the difficulties in dealing with these issues, and the jurisdictional questions that can be raised, is inherent in the Utah rules themselves. A potential dose to a member of the public from proximity to uranium waste rock at a mine site would be the result of a natural feature of the waste rock itself, and not because the waste rock "produce(s) a chemical or physical condition in the soils or water that are detrimental to the biota or hydrologic systems." A credible argument can therefore be made that the natural emanation of radiation from the waste rock would not itself result in the waste rock being considered a "deleterious" material under Utah rules.

However, despite the fact that there are no current state or federal standards for reclamation of waste rock areas at uranium mine sites, Denison is prepared to voluntarily agree to a standard for its mines in Utah. Denison believes that a standard equal to a dose of 100 mrem above background to a person camping on or near a waste pile for 14 days is reasonable and falls within the radiation protection concept of ALARA (As Low As is Reasonably Achievable).. This 100 mrem proposal is supported technically by recommendations from the National Council on Radiation Protection and Measurements (NRCP) [See NRCP Statement 10, *Recent Applications of the NCRP Public Dose Limit Recommendation for Ionizing Radiation*, (NCRP, 2004), and NCRP's Report No. 116, *Limitation of Exposure to Ionizing Radiation* (NCRP, 1993)]. It is also a

standard that is consistent with the numerical public dose protection standard set by the Nuclear Regulatory Commission (NRC) for uranium milling facilities as set forth at 40 CFR Part 20, Subpart D § 20.1301 - Dose limits for individual members of the public, which provides in part:

(1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewereage in accordance with § 20.2003.

[56 FR 23398, May 21, 1991, as amended at 60 FR 48625, Sept. 20, 1995; 62 FR 4133, Jan. 29, 1997; 67 FR 20370, Apr. 24, 2002; 67 FR 62872, Oct. 9, 2002]. Utah has adopted the same standard in UAC R313-15-301.

As you pointed out in your email, 0.1 rem = 100 mrem. However, given that the 100 mrem standard has been adopted by NRC and the State for milling facilities, where large volumes of mineralized rock and wastes can be present; and where the 100 mrem standard has been determined to be protective of human health, we don't believe it would be appropriate to set the standard at one half or one third of the 100 mrem allowable dose as you suggested. This seems arbitrary and likely unachievable for existing mine sites. Denison believes that the use of an established standard which has been determined to be protective of public health for similar types of facilities and which already has conservatism built into the standard is appropriate. In addition, this standard can be achieved by existing mines and can be proven and agreed upon by the agency and the permittee by utilizing standard surveying instruments and specified methodologies at the time of reclamation. Based on this information, Denison believes that the 100 mrem standard by itself, based on a 14 day residency provided for a camper, is sufficient and supportable for mine reclamation.

We believe this approach will adequately address the radiological concerns without attempting to develop a new standard on an *ad hoc* basis.

We would be pleased to discuss this proposed approach with you. Please give me a call at your convenience.

Yours very truly,
DENISON MINES (USA) CORP.

Christy Woodward, PE
Environmental Coordinator

Cc: Dave Frydenlund, Harold Roberts, Ron Hochstein, Denison Mines (USA) Corp.
Rebecca Doolittle, Lynn Jackson, US Bureau of Land Management

DENISON MINES